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State of New Jersey

Department of Environmental Protection

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Governor

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Commissioner

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NJD 044688935

MAY - 1 2001

Re: Arsynco, Inc. (Arsynco)
Carlstadt Boro, Bergen County
ISRA Case #E93024
Response Letter Dated: May 11, 2000

Dear Mr. Hird:

The New Jersey Department of Environmental Protection (Department) has reviewed the above referenced submittal and has the following comments.

Arsynco acknowledges that individual areas of concern are present within or adjacent to the larger areas of contamination that exist. However, in light of the fact that the contaminants or potential contaminants associated with these overlapping areas are the same in most cases and the fact that remedial proposals have been presented to address these widespread areas, Arsynco believes that it is unnecessary and impractical to adhere to a strict application of all aspects of the investigation methods provided in N.J.A.C. 7:26E.

I. AREA I – PARKING LOT, OFFICE BUILDINGS AND POND

1. Non-Contact Cooling Water Pond Closure

Arsynco previously proposed no further action for soils in this area of concern (AOC). The Department stated that this was conditionally acceptable. Arsynco was required to submit the specific sampling depth for VOs. In addition, Arsynco was required to clarify whether the integrity of the liner was verified and if so, were there any breaches of integrity.

Response
Arsynco states that the sample collected from the pond sediments was obtained before the pond was emptied (pond still contained standing water). Approximately 18 inches of sediment were present above the clay liner encountered at the center, base of the pond. The sample for VOs was collected from the 6-inch increment of sediments above the clay liner (bottom of sediments). Arsynco also provided a summary of the depths at which all VOs were obtained for all applicable soil samples collected from all AOC's at the site.

Arsynco states that once the Non-Contact Cooling Water Pond was drained of standing water, the base and sides of the pond structure were inspected, and it was verified that the pond was lined with clay. In addition, a concrete collar was present around the top of the pond perimeter. No breaches to the clay liner were observed during the closure program, and no water was observed to reenter the pond (base of pond was approximately 8 feet below groundwater level). Due to the amount of sediments at the center, base of the pond, it was not possible to inspect all portions of the clay liner at the deepest points of the

structure. No significant cracking or breakage was noted in the concrete collar structure. Arsynco proposes no further action for this AOC.

Comments
As the integrity of the liner could not be completely verified and as clay is permeable to some extent, additional wells are required. Arsynco shall install two shallow and deep well pairs. One shall be located on the southeast side of the pond, the other on the southwest side. Note: A series of cone penetrometer samples along the southwest property line, southwest of this pond, were required in the 3/28/00 letter to investigate the claim that MW6D was an upgradient well. These samples will not be required, as a well cluster has been required on the southwest side of the pond. Wells shall be sampled for VO+15, BN+15, PPM and PCBs.

In the future, Arsynco shall submit reports which satisfy the Technical Requirements for Site Remediation (Tech Regs), specifically N.J.A.C. 7:26E-3.13.

2. General Sampling Activities

Arsynco previously stated that no additional delineation sampling was necessary. The Department required Arsynco to revisit Building #2 and determine the discharge point for the drain line.

Response
Arsynco again states that dye testing was unsuccessful in determining the discharge point of the floor drain present in the southeast corner of Building 2. As a result, Arsynco will attempt to verify the discharge point of this drain either through exploratory trenching or other methods.

Comments
This is acceptable. The results shall be included in the next report.

II. AREA II – NORTHWEST PORTION OF SITE

1. Former Storage Container Area

Arsynco previously stated that elevated levels of contaminants were identified in the soils adjacent to or surrounding the former storage containers. Arsynco submitted no proposal for this AOC. The Department pointed out that in sample II-7, benzo(a)anthracene (BaA) was detected at 2.7 ppm, which is above the Residential Direct Contact Soil Cleanup Criteria (RDCSCC) but below the Non Residential Direct Contact Soil Cleanup Criteria (NRDCSCC). Arsynco was required to complete delineation for this compound.

Response
Arsynco states the BaA identified in soil sample II-7 (2.7 ppm) has been delineated to the east (samples II-3, II-4, II-5, II-6 and I-5) and to the north (sample PP-14).

Arsynco states that the elevated PAHs (BaA) at soil sample II-7 is attributable to historic fill. Arsynco states that PAHs were detected at low and sporadic levels in nearly all samples across the site. As outlined in the RAW, Arsynco proposes to address historic fill concerns via engineering and institutional controls.

Comments
Boring logs and Arsynco's description of the fill across the majority of Tract 1 do indicate the presence of historic fill. However, the description of the fill also states that process waste was disposed in the southeast

corner of Tract 1. Process waste is NOT historic fill, therefore, contamination related to process waste, as opposed to fill that may be mixed in with it, shall be addressed.

MW7S, previously installed at II-7, was sampled four times for VOs and arsenic and twice for BNs and PPM (data presented in RAW). Arsenic was detected at 251 ppb, BNs were not detected. Chlorinated VOs and benzene were present in the 100 ppb range. The PAHs found in this AOC are probably not due to site operations. Therefore, inclusion of the historic fill PAH contaminant(s) in the Deed Notice and capping are now acceptable.

2. Former Building 11 Septic System

Arsynco previously stated that since no contaminants were present in the area of Building 11 septic system at concentrations in excess of NRDCSCC, the septic tank structure was crushed in place and the area was backfilled with certified clean fill material. The Department pointed out that the Sampling Plan Proposal with Data (SPD) called for analysis of the sludge and aqueous phase for PP+40 and PHC's. If the samples have been archived, they should be analyzed for PHC's. The PCBs detected in the sludge material (1.9 ppm) shall be included in the site Deed Notice. Arsynco was required to verify that delineation has been completed for all contaminants detected above the RDCSCC. In addition, the Department required a well downgradient of the septic tank, at soil sample location PP-12. The well was to be screened across first water and sampled for VO+10, BN+15, PPM and PCBs.

Response

Arsynco states that samples collected from the septic tank were analyzed for PP+40. However, the samples were collected in 1995 and were not archived and are no longer available for analysis. The tank was crushed and backfilled. Arsynco states that there was no evidence of PHC contamination noted. No further sampling of the septic soils is proposed. The low level PCBs detected in sludge (1.9ppm) will be included in the site-wide deed notice. In regard to the requirement for a well at soil sample PP-12, Arsynco proposes one well between PP-12 and the former 17,000 gallon UST area, rather than a well at each location. Arsynco states that site groundwater concerns should be addressed as a whole. Arsynco does not believe that addressing each AOC individually, when they may exist within the boundaries of other AOCs, is beneficial or practical.

Comments

No additional soil sampling for PHC's is acceptable. Including PCBs in this area in the site wide Deed Notice will be acceptable. Arsynco shall verify that delineation has been completed for all contamination above the RDCSCC. The proposal for one well rather than two is not acceptable. As proposed, this well would not be downgradient of the gasoline UST, which was southeast of the septic and PP-12. In addition, The Technical Requirements for Site Remediation (N.J.A.C. 7:26E) require a groundwater sample within ten feet of all septic tanks and all leaking USTs. The Department required a well at PP-12, which is approximately 25 feet from the septic, rather than requiring individual wells at the septic, PP-12 AND at the 17,000 gallon leaded gasoline UST. However, shallow wells are still required at PP-12 and in the former 17,000 gallon UST excavation. Both wells shall be sampled for VO+15, BN+15, PPM and PCBs. Note that vertical delineation may be required at these locations based on the shallow well results. In addition Arsynco shall determine whether the invert of the 17,000 gallon UST extended below the meadow mat. If so, Arsynco shall install a well pair at the UST.

In future submittals, Arsynco shall submit a scaled site map indicating the location of all proposed wells in relation to applicable AOCs.

In regard to treating site groundwater as a whole, as stated above, the Tech Regs require wells at specific types of AOCs. In addition, different contaminants, or higher concentrations, may be associated with various AOCs. If these AOCs are not investigated adequately, contamination may be overlooked, or a source misidentified. Note also that part of the RAW proposal was to install more wells to monitor the air sparging/biorem system. The Department is anticipating that a number of the wells required herein will be used for that purpose. The Department will attempt to use the same wells to monitor multiple concerns whenever possible.

3. Former Drum Storage Area

Arsynco previously stated that all sampling conducted in this AOC indicated that no elevated concentrations of contaminants are present in this area. The Department required Arsynco to excavate the stained soils west of Building #11. Post excavation samples were to be analyzed for PHC's and BN+15 (if PHC's greater than 1,000 ppm then also analyze for VO+10).

Response
Arsynco states that they are unaware of any stained soils in the area west of Building 11. The area west and southwest of Building 11 is paved with asphalt, with the exception of a small, unpaved area located immediately adjacent to the southwest side of Building 11. As reported in the RIR, soil sample PP-13 was collected in 1993 in relation to the suspected location of the Building 11 septic system. Additional samples were also collected from locations to the west and southwest of Building 11 and no evidence of contamination was identified. No further action is proposed in relation to this area.

Comments
On September 8, 1993, the Department conducted a preliminary inspection of this site. During that inspection, staining was noted by both the Case Manager, John King, and the technical coordinator, Christine Lacy. As stated in previous submittals, the staining was observed on the west side of Building 11. Arsynco shall inspect the area west of Building 11 for stains. If stains are located, Arsynco shall submit a remediation plan.

4. RCRA Storage

The Department previously required that Arsynco delineate contaminants to the RDCSCC to insure that no migration off-site has occurred. Sample II-7 had 2.7 ppm BaA. The RDCSCC is 0.9 ppm. Results for BaA were not reported for samples II-7D and II-7D(1).

The Department also pointed out that MW-7S was installed directly downgradient of II-7 and sampled for four rounds of VOs and arsenic and two rounds of BNs and PPM. Arsenic was detected at a maximum of 251 ppb, BNs were not detected. TCE and associated breakdown products were detected in the 100's of ppb range. Low level benzene was also detected in MW-7S. Benzene and toluene were detected in soil sample PP-12 at 24 ppm and 1,300 ppm respectively. The benzene and toluene contamination apparently emanates from a gasoline fueling pump associated with UST 00P2 (Area VI). Reportedly, the horizontal extent of the soil contamination is minimal, however, it does extend to the water table. Arsynco considers MW-7S an upgradient shallow well.

The Department stated that MW-7S may not be an acceptable background well, as it is downgradient and in close proximity to the former RCRA storage area and the former storage container area. Arsynco shall either demonstrate background contamination with additional samples, or delineate the VOs in MW-7S vertically and horizontally.

Response
Arsynco states that comments related to sample location II-7 were addressed in the discussion related to Area II – Former Storage Container Area. As levels of PAHs are related to historic fill material, and historic fill is documented to extend beyond the property boundaries in all directions, no further delineation of historic fill is proposed.

Arsynco also states that the 1996 contour maps show MW7S as downgradient of the RCRA storage area. However, all data collected indicates an overall flow direction from west to east. In addition, the arsenic and chlorinated VOs detected in MW7S were not detected in predominantly upgradient AOC soils. Therefore, MW7S is downgradient of soil sample II-7 and is an acceptable background well. However, to further illustrate this point, Arsynco proposes to collect one groundwater sample northeast of MW7S, approximately five feet from the western property boundary. The sample will be collected via GeoProbe and will be sampled for VO+10 and arsenic.

Comments
As stated before, boring logs and Arsynco's description of the fill across the majority of Tract 1 do indicate the presence of historic fill. However, the description of the fill also states that process waste was disposed in the southeast corner of Tract 1. Process waste is NOT historic fill, therefore, contamination related to process waste, as opposed to fill that may be mixed in with it, shall be addressed.

In regard to ground water, the Department cannot accept MW7S as a background well without supporting documentation (additional groundwater samples). This is particularly true when the well is so close to site AOCs and the facility apparently had poor housekeeping. Arsenic and chlorinated VOs may not have been detected in upgradient soil, however, the exact locations at which these compounds are present in soils may not have been sampled. In any case, the only way to prove that contamination is coming onto the site is to install appropriately placed background wells.

The proposed GeoProbe sample is acceptable, however, the sample shall be moved farther west, to the opposite side of the railroad tracks. This is required as the proposed location is still too close to Arsynco AOCs to adequately evaluate background contamination. Arsynco shall also provide a description of the sites located between the railroad tracks and Route 17 with the report of groundwater results. This is to provide additional information on the likelihood of an off-site source. Arsynco is advised that a shallow well, paired with the proposed upgradient deep well at PP-14 would be preferable and to their advantage as it could be monitored periodically to assess changes in background water quality.

5. PP-12 Sample Location

The Department previously required Arsynco to excavate the area of staining west of Building 1 and analyze post excavation samples for BN+15 and PHC. In addition, the Department noted that Table 2 indicated that sample II-8 and II-9 were sampled for benzene and xylene, not benzene and toluene as noted in the text. Arsynco was required to clarify this. If it was toluene, Arsynco was to submit the data sheet from the lab.

Response
Arsynco does not propose to excavate the area of soil staining located to the west of Building 1 at this time. An additional shallow well is proposed in this area to document the quality of groundwater. Following well installation and sampling, remedial options will be reviewed, as appropriate. Based on the groundwater quality data obtained, it may be appropriate to incorporate this area of VO contamination into the in-situ VO treatment system proposed in the RAW.

Arsynco states that sample II-9 was actually analyzed for BTEX, not just benzene and xylene. The results verified that no concentrations of BTEX were present in this sample. However, sample II-8 was erroneously analyzed for benzene and xylene, rather than benzene and toluene. The extent of toluene contamination in soils to the north of the PP-12 location is documented with the results of soil sample B11S-D. No further action is proposed in this area.

Comments
This is conditionally acceptable. Arsynco shall demonstrate delineation to the north for toluene (since soil sample location II-8 did not include analysis for toluene and due to its close proximity to the property boundary). The Department would like to point out that excavating the soil prior to well installation would prevent the need to remove the well to excavate the soil at a later date. In addition, if the soil is excavated, the problem in that area is addressed, whereas treating the soil may not be as effective. Note that sparging/bioremediation may require multiple applications or application for an extended period of time.

AREA III – NORTHEAST PORTION OF SITE

1. Former Trash Compactor

The Department previously required that PCBs detected at location PP-7 shall be included in the site Deed Notice.

Response
Arsynco proposes to include PCBs at soil sample location PP-7 in the site Deed Notice.

Comments
This is acceptable.

2. Former Material Staging Area

Arsynco was previously required to delineate contaminants to the RDCSCC to insure that there is no migration offsite. Sample PP-8 had 3.7 ppm of benzo(b)fluoranthene and 4 ppm of benzo(k)fluoranthene. Sample III-4 also had 2 ppm of benzo(b)fluoranthene. Sample III-4A was not analyzed for benzo(b)fluoranthene. Therefore, the delineation of BN compounds in the soil in this area is not complete.

Response
In relation to the PAH contamination identified in sample PP-8, Arsynco notes the analytical results for soil sample III-1, collected from the 0-6 inch increment of soil immediately north of sample location PP-8. Sample III-1 was collected for the purpose of delineating the extent of contamination to the north of PP-8. No PAHs were identified in sample III-1 at levels above the RDCSCC, completing the delineation of PAHs to the north in this area.

Arsynco again points out that it is clear that the levels of PAHs identified at relatively similar and consistent levels across all areas of the site are related to historic fill material rather than site discharges. These levels were identified in areas not associated with any historic process or storage operations, including areas of fill located below building floor slabs. In addition, no concentrations that are indicative of a site operations related source of PAH contamination were identified in the samples collected within former production or storage areas of the site or in areas of process related contamination identified

within the fill material. No further delineation (including offsite delineation) of historic fill related contamination is proposed.

Comments
The Department agrees that PAHs at PP-8 have been delineated to the north. It is assumed that this area will be included in the site Deed Notice and engineering controls installed.

3. Drum Cleaning Station

The Department previously required Arsynco to propose a remedial action for all stained soils in this area including soils beneath the brick pad and previous location PP-9. In addition, Arsynco was required to delineate the VO and metals contamination in wells MW8S and MW8D. Delineation may be done with cone penetrometer samples, however, permanent wells are required to define a clean zone.

Response
Arsynco proposes to expand the VO treatment system to include the limited area of VO soil contamination in this area of the site. Regarding delineation of VOs and metals contamination at wells MW-8S/MW-8D, it is noted that existing wells MW-11D, MW-10D and MW-9D are downgradient from MW-8D, and additional deep wells are proposed along the eastern side of Tract 2, further downgradient. Existing well MW-15D is also located upgradient of the 8D area. In the shallow zone, existing data show that wells MW-14S and MW-4 are downgradient from MW-8S. An additional shallow well is also proposed further east, in the northeast corner of Tract 2. The shallow well that is proposed in the area of sample PP-12 will be located in an upgradient area from MW-8S. The location of current wells in conjunction with the proposed wells noted above may be sufficient in relation to the 8S/8D area, and installation of additional wells is not proposed at this time.

Comments
The proposal to expand the proposed sparging system to include the drum cleaning area is not acceptable. Groundwater in this area is flowing off-site to the northeast and may be influenced by either the production pond, the recovery system, or the production well on the Henkel site (see comments on groundwater remediation below).

In regard to benzene, chlorobenzene and chloroform in "upgradient" wells MW15S and MW15D, UST-00P1, formerly located immediately southeast of the drum station, contained dichlorobenzene. The benzene and chlorobenzene detected in soils and groundwater may be breakdown products of the dichlorobenzene. Alternatively, these compounds may be due to another source, such as the Building 11 septic. As for the MW15S/D well pair being upgradient, it has come to the attention of the Department that the Henkel facility, located immediately north of Arsynco is operating a recovery system northeast of Arsynco. This system consists of four recovery trenches, which operate at "high volume recovery" according to the Henkle file. In addition, older contour maps from the former Henkel property owner, Diamond Shamrock, indicate that groundwater flow was historically northeast toward the pond on that property. Diamond Shamrock also provided information regarding off-site contamination coming onto their site at wells P1 and MW17. This argument was accepted by the Department in 1997. Wells P1 and MW17 are immediately adjacent to the Arsynco site. (Note that Diamond Shamrock also had or has a 170 foot deep production well on the site, which may also have affected groundwater flow).

Based on the above information, the Department cannot accept MW15S/D as background wells. Note that this is also the case for MW4S and the MW8S/D and MW14S/D clusters, as they are along the same property line. To address the off-site contamination issue, Arsynco shall install off-site well clusters east/northeast of the MW8S/D and MW15S/D clusters. Concentrations in the MW14 cluster were

elevated in 4/96, decreased to negligible levels in 1/97 and were ND in the next two rounds. Delineation is not required at MW4S or MW14S/D at this time, however, if future monitoring indicates that the wells are again contaminated or concentrations increase (in MW4S) delineation shall be performed.

Arsynco shall also determine the status of the Henkel production well. This shall include the current pumping rate if the well is in service or approximate past pumping rate(s) and the date it was taken out of service if the well is no longer in use. Arsynco shall also determine whether this is the only production well on the Henkel site. Arsynco shall also obtain any analytical data that may exist for the well and for the former Arsynco production well.

In regard to downgradient delineation of MW8S/8D, additional wells have been required at the Building 5 septic, the ETB, the former 17,000 gallon gasoline UST and soil sample IV-7 (drainage system breach). These wells should be adequate to delineate the contamination at MW8S/D on the Arsynco site (to the south/southeast).

4. Aboveground Tank Trailer

The Department previously required that the PCBs in this area be included in the site Deed Notice.

Response
Arsynco states that all levels of PCBs above the RDCSCC that will remain on-site will be included within the site Deed Notice.

Comments
This is acceptable.

5. Former Building 5 Septic Tank

The Department previously required, pursuant to N.J.A.C. 7:26E, a well within ten feet downgradient of a septic tank. This well shall be screened across first water and sampled for VO+10, BN+15, PPM and PCBs.

Response
Arsynco requests a variance from the Department with regard to this requirement. Arsynco's position is that numerous soil samples have been collected near the septic and nothing was detected above the Impact to Ground Water Soil Cleanup Criteria (IGWSCC). Arsynco also states that wells MW8S and MW14S are upgradient and downgradient respectively, of the septic. As a large VO plume has already been identified on the site, an additional well would be an unneeded data point between other existing points.

Comments
The IGWSCC are not indicative of whether groundwater is or is not actually impacted. They are concentrations that are expected to continue to act as a source to groundwater if left untreated. The Department requires a well at septic tanks precisely because the discharge from a septic is directly to groundwater. In regard to the presence of MW8S and MW14S, MW8S is presumably upgradient (as stated by Arsynco) and MW14S is approximately 100 feet southeast, which is too far away. Therefore, a well is still required within 10 feet downgradient of the septic. This well shall be sampled for VO+10, BN+15, PPM and PCBs. Arsynco is advised that vertical delineation may be required based on the results from the shallow well.

6. Miscellaneous Soil Sampling

The Department previously pointed out that there have been references made regarding the storage of drums all along the eastern property boundary and along Buildings #1, 1A, 5, and 5A in Area III. These references make mention of drums in poor condition and no secondary containment. Arsynco was required to propose additional sampling in accordance with N.J.A.C. 7:26E to better characterize this entire area.

In addition, a sample was to be collected along the north, outside wall of Building 5, halfway between sample locations III-6 and III-11. The sample was to be analyzed for PP+40 and PHC. A sample was to be collected along the north, outside wall of Building 1, south of sample number PP-10 and analyzed for PP+40 and PHC. Delineation sampling was to be performed around sample number PP-6.

The Department had mentioned that a site inspection report dated January 16, 1980 had referenced several drums of diethylamine solution leaking in the northeast section of the site. Arsynco was required to submit additional information and address the spill in accordance with N.J.A.C. 7:26E.

Response
Arsynco states that reference to the storage of drums "along the eastern property boundary" relates to the former storage area located in the eastern part of Area V, east of Building 19 tank farm. This area was previously sampled. The only drum storage areas known to exist within Area III were in the area of the former drum cleaning station (on a temporary basis) and in the area north of the access road. No drum storage is known to have existed immediately adjacent to either the north side of Building 1, 1A, 5 or 5A. No storage was observed in these areas during a review of historic aerial photographs, and no sign of storage or other significant concerns were observed during an inspection.

Despite the above information, Arsynco still collected samples from these locations to document soil conditions. Arsynco believes the sampling conducted to date complies with the sampling frequency requirements outlined in N.J.A.C. 7:26E.

Comments
The Department will review the data and information for Area V and address under Area V comments. Arsynco shall inspect the Department's records in which comments appear concerning the storage of drums immediately adjacent to the north side of Buildings 1, 1A, 5 or 5A and shall prepare an appropriate response. Please see the Department's previous comments regarding historic fill and PAHs.

IV. PLANT PRODUCTION AREA

1. Drainage System Mapping/Decommissioning

Arsynco was previously required to document the locations where the integrity of any trenches, floor drains, catch basins, etc. were suspect. Arsynco was to propose sampling at these locations pursuant to N.J.A.C. 7:26E.

Response
Arsynco states that the overall facility drainage system was found to be in relatively good condition, although evidence of suspected contamination resulting from potential breaches of system integrity were observed in some areas. Previous sampling completed in relation to the facility drainage system was biased toward low lying areas of the system and all areas where evidence of contamination associated with the drainage system was observed during removal. Samples were also obtained from the vicinity of

major areas of drainage lines or system components where system integrity was not necessarily observed to be breached, but where potentially contaminated soils associated with other sources may have been observed.

Arsynco notes that evidence of potential contamination was encountered at the soil/groundwater interface in many areas throughout Area IV. However, the contamination observed in these areas were determined not to be related to the drainage system components. Rather, the contamination was observed to be associated with the plume of BTEX centered in the areas of Building 8, Building 19 and Building 6. Remediation has been proposed to address the source levels of VOs in both soil and groundwater in these areas.

Arsynco does not propose to collect additional samples in relation to the site drainage system.

Comments
This is conditionally acceptable. If after active remediation of sources of VOs in soil and groundwater, groundwater VO standards are still being exceeded, then Arsynco may be required to conduct additional soil sampling and delineation of the sources of VOs in soil.

Arsynco shall install a monitor well pair at the wastewater treatment basin and a shallow well at soil samples IV-7 and IV-9 respectively. Note that both shallow and deep wells are being required at AOCs that were potentially deep and therefore have the potential to discharge above and below the meadow mat. If Arsynco has reason to believe that contamination may exist below the meadow mat at additional locations (based on depth of drain lines, etc.) Arsynco shall install well clusters in those areas rather than just shallow wells. The above three wells are being required as the drainage system integrity was suspect at these locations and to more fully delineate the VO plume in groundwater. (Note that a thin film and/or sheen of product was noted in trenches during investigation of Building 6). The wastewater treatment basin is obviously a source and although wells MW11S/11D/11DD are downgradient, they are approximately 100 feet downgradient. The additional wells will help determine the worst case scenario for groundwater and will also provide monitoring points for the air sparging/enhanced bioremediation. These wells shall be sampled for PP+40 including PCBs (pesticides may be deleted).

2. Building Floor Slab Sampling

The Department previously required Arsynco to propose soil sampling beneath the former Building 6 and Building 3/9 for PCBs.

Response
Arsynco proposes to collect two soil samples from the first six inches of soil beneath the floor slab of Building 3/9 and two soil samples beneath the floor slab of Building 6. Each of these four samples will be analyzed for PCBs. Arsynco points out that soil samples G-12A (0.094 ppm PCBs) and G-12B (1.1 ppm PCBs) were collected from the fill material beneath the floor slab of Building 3/9 during the PCB grid sampling program.

Comments
This is conditionally acceptable. Building 3/9 have a footprint of approximately 5,000 square feet. Pursuant to N.J.A.C. 7:26E-3.9(e)1.ii., sample frequency shall be at least 1 sample for every 900 square feet for areas up to 300 feet in perimeter. Therefore, Arsynco shall collect a minimum of six soil samples beneath the floor slab of Building 3/9. Building 6 has a footprint of approximately 4,700 square feet. Therefore, Arsynco shall collect a minimum of five soil samples beneath the floor slab of Building 6.

At least one of the samples collected below the Building 3/9 floor slab shall be collected from beneath the Building 3 portion. This is because the heat transfer system involving PCBs was housed in Building 3, i.e., the PCBs were heated in Building 3 and pumped to Building 6. Since Building 3 was constructed for that purpose, presumably it is a separate building attached to Building 9. Soil samples collected from beneath Building 3 shall also be analyzed for dioxins and furans. In addition, since the Building 6 floor slab was left intact on-site due to elevated PCB levels in the concrete, the Building 6 slab shall also be sampled for dioxin and furans.

3. UST Removal

The Department previously required an additional monitoring well in the area of the former 17,000 gallon gasoline UST. This was addressed under Area II – Former Building 11 Septic System, above.

4. General Soil Sampling Program

The Department previously required a well within ten feet of the former leaded gasoline UST excavation, as contamination reportedly extended to the water table. This well was to be sampled for VO+10 and lead, at a minimum. Based on the soil data provided, a well was required within ten feet downgradient of soil sample IV-10, which contained elevated ETX and 27,000 ppm Pb. This well was to be screened across first water and sampled for VO+10, BN+15, PPM and PCBs. Although MW11S/11D are in the vicinity of this sample, they are upgradient rather than downgradient.

Arsynco was required to sample the apparent outside discharge from the central floor drain in Building 1. The discharge point was on the northeast side of the building, by the former mineral oil tanker trailer. Arsynco was to collect a minimum of one sample biased towards the suspected location of greatest contamination and analyze for PP+40 and TPHC.

The Department previously pointed out several requirements that had not been completed. Arsynco was to excavate the visually contaminated soil and collect post excavation samples for the staining on and adjacent to the northeast side of Building #1. Arsynco was required to investigate the history of what appeared to be AST supports on the northwest side of Building #1

Arsynco was required to address the several deep holes in the concrete floor along the east wall and propose appropriate sampling.

Arsynco was required to resample the transformers for PCBs pursuant to N.J.A.C. 7:26E. Vertical delineation of the PAH contamination found in sample IV-6 was to be completed.

Arsynco was to address the AST observed on the northeast side of Building 8-B as previously required.

Arsynco was to submit additional information in regards to the reported french drain that existed in Building 8 and identify the discharge point of the drain as previously required.

Arsynco was to identify the location of the 1,500 gallon xylene spill (reported March 13, 1991) and propose sampling as previously required.

Response

As previously stated, the additional monitoring well required in the area of the former gasoline UST near the west side of Building 1 was addressed under Area II – Former Building 11 Septic System. Regarding the well requirement near soil sample IV-10, Arsynco states that this sample was collected below the

Building 8 floor slab, within the primary mass of VO contamination associated with the known site plume and in the immediate vicinity (and downgradient) of MW-11S. Arsynco notes that MW-9S and MW-10S are both located in downgradient directions from soil sample IV-10, and numerous soil samples have been collected from the soil/groundwater interface at locations immediately downgradient of this area. Arsynco states that a well in the area of sample IV-10 will almost certainly demonstrate elevated levels of VOs, PHC's and lead (similar to MW-11S, located approximately 20 feet away), and remediation of this area has already been proposed. Arsynco feels that an additional well in this area is not warranted.

Arsynco states that the pipe along the north, outside wall of Building 1 never discharged any material to the ground surface. The pipe from this trench was routed through the north side of the building and was formerly diverted underground into a subsurface drainage line that discharged to the effluent treatment basin (ETB). The floor trench that this pipe was connected to was completely covered over and sealed when a new concrete floor was poured over the old floor in the western part of Building 1 around 1970. The newer floor drains in this part of Building 1 were installed and connected to a new subsurface drain line located slightly further north of the old system. The inactive drain pipe from the old trench in the original floor that was covered over was then cut off at the outside, north wall of the building.

Arsynco states that the Department's requirements to excavate "stained" and/or "visually contaminated" soils from various areas of the property were premature and unwarranted because the soil in most areas had not been sampled or delineated. Arsynco elected to collect initial characterization samples, followed by delineation sampling (when warranted) to define the extent of any contamination observed. Soil sample PP-9 was collected from the area of the former drum cleaning station (stained soils on the northeast side of Building 1). Xylene was the only contaminant identified (120 ppm). Delineation sampling identified slightly elevated levels of benzene, chlorobenzene and chloroform in sample III-8, collected 10 feet west of sample PP-9, but also confirmed that the lateral extent of soil contamination was not significant in this area. An impact to groundwater has been observed at well locations MW-8S/MW-8D. Arsynco proposes to expand the VO treatment system to include the limited area of soil contamination in this area of the site.

Arsynco states that the only structures present on the northwest side of Building 1 consisted of a concrete pad with steel beam supports. This structure was related to a former hoist that was used to move items from the ground surface to the second story of Building 1. No concerns were observed in relation to this structure, and no further action is proposed.

Arsynco states that all floor drains within Building 1 were traced and mapped during the investigation. All drainage structures, including those noted as being "several deep holes in the concrete floor along the east wall" of Building 1-A portion of Building 1, were determined to discharge to the ETB. The integrity of the drainage system in Building 1 was inspected during the investigation, and no concerns were observed in relation to the structures. No further action is proposed.

Arsynco states that the transformers are no longer present on the site. These units were decommissioned and removed from the property. Arsynco proposes to collect soil samples from the areas adjacent to the east, west and south sides of the former transformer pad area. Samples will be collected from the first six inches of soil and analyzed for PCBs. Soil sample G-3A was previously collected from the top six inches of soil on the north side of the former transformer pad. PCBs were identified at 1.5 ppm in this area.

Arsynco states that the AST present on the northeast side of Building 8-B was a 6,000 gallon tank that was used to store 20% sodium acetate solution. There are no known discharges in relation to this AST. Arsynco is unaware of any common Priority Pollutant List, Target Compound List or other reasonable

parameter that would be useful in assessing the soil in this area for potential discharges related to the material stored in this AST. No further action is proposed for this area.

Arsynco is unclear as to what the Department is referring to in relation to the french drain in Building 8. It is believed that the trenches within the building floor were referred to as french drains. As noted previously, the entire drainage system was investigated, traced and removed. No further action is proposed.

Regarding the spill of 1,500 gallons of xylene in 1991, Arsynco states that this was addressed in Attachment E of the SES for the site. All spilled material was properly contained by the spill control drainage trench within Building 6. All material was directed to the ETB where all of the xylene was recovered. Arsynco points out that areas of Building 6 and the ETB are included within the BTEX plume that will be actively remediated during the proposed mobile, vertical air sparge system.

Comments

Regarding the former gasoline UST near the west side of Building 1, this was addressed under Area II – Former Building 11 Septic System, above.

Regarding the requirement for a well downgradient of soil sample IV-10, the requirement for a well at IV-10 is withdrawn at this time due to the proximity of MW-11S/D/DD and the fact that a well has been required at IV-9. The well at IV-9 shall be sampled for PP+40 minus pesticides.

Regarding the requirement to sample the apparent outside discharge from the central floor drain in Building 1, the explanation that this pipe had previously been connected to a floor trench in Building 1 and never discharged any material to the ground surface is acceptable. No soil sampling is required regarding this pipe.

Arsynco states that rather than proceeding with excavating various areas of soils (i.e. stained or visually contaminated), they elected to collect characterization samples, followed by delineation sampling (where warranted). Arsynco points to soil sample PP-9 and associated delineation sampling as having addressed this area. This is not acceptable. The stained soils identified by the Department during the preliminary site inspection were located at the end of Building 1 where the Mineral Oil Tanker Trailer was located. The only sample collected in this area was PP-11, to address the Tanker Trailer. Therefore, Arsynco shall conduct soil sampling outside and adjacent to the northeast side of Building 1. Sample(s) shall be analyzed for PP+40. As stated previously, the proposal to expand the air sparging/bioremediation system to the drum cleaning area at Building 1 is not acceptable, as it has been determined that groundwater is flowing off-site to the northeast in this area. See comments below in the "Fill and Shallow Groundwater" section.

The explanation of what appeared to be AST supports is conditionally acceptable. Arsynco shall provide photocopies of the documentation which was used as the basis for their explanation.

Regarding the deep holes in the concrete floor, Arsynco has stated that they were part of the drainage system and investigated as part of this system. This is acceptable.

The proposal to sample adjacent to the transformer pad on the east, west and south sides is acceptable. Vertical and horizontal delineation of soil sample G-3A on the north side of the transformer pad is also required. Vertical delineation at location G-3A should be below 3.5 feet because soil sample G-3 (3.0-3.5 feet) identified PCBs at 5.8 ppm. The requirement for vertical delineation of the PAH contamination found in sample IV-6 remains outstanding.

The no further action proposal for the french drain is conditionally acceptable. If after active remediation of the sources of VOs in soil and groundwater, groundwater standards are still being exceeded, then Arsynco may be required to conduct additional soil sampling and delineation of the sources of VOs in soil.

The response regarding the 1,500 gallon xylene spill and the proposal for no further action is acceptable.

V. BUILDING 19 AND NORTHEAST TANK FARM

The Department previously required the following:

- Demonstrate that delineation has been completed in all directions. In particular, delineation to the RDCSCC off-site and to the north.
- Excavate the stained areas observed during the site inspection on September 8, 1993. Post excavation samples were to be collected and analyzed for PHC and PP+40. Xylene was to be run as a target compound.
- Identify the discharge location of the french drain for Building 19.
- Address the spill of several hundred pounds of caustic soda between Building 5 and Building 19.
- reference was previously made of a solid material being spilled between the tank farm and Building 14. Arsynco was to submit additional information on this spill and address in accordance with N.J.A.C. 7:26E.
- Contamination extends to the perched water throughout Area V. Wells MW-14S/14D are located within this AOC and contain low levels of VOs, BNs and somewhat elevated metals. Although these wells are on the northern property boundary, only MW-14D is an upgradient well. A groundwater divide is indicated at Building 8 on the shallow contour maps, indicating that MW-14S is downgradient from Area III.
- A well at soil sample V6, as V5 contained toluene above the IGWSCC and V6 contained ethylbenzene and xylene above the IGWSCC. According to shallow contour maps, V6 is downgradient from V5.

Response

Arsynco notes that soil samples V-6, V-7, V-8, V-9, V-10 and V-11, as well as samples ARSD-1, ARSD-12 and ARSD-25 were all collected adjacent to the northern property boundary, and no VOs were identified in any of the samples above the most stringent cleanup criteria. No further soil sampling is proposed in this area. Soil samples V-4, V-5 and V-6 document the extent of contamination to the east and samples PP-6, PP-7, III-10, III-11 and V-14 document the extent of VO contamination to the west. VO contamination to the south of Area V extends to the south and southwest and is connected to the large plume of contamination that covers the eastern part of the former plant production area. Arsynco states that the extent of VO contamination has been delineated in all directions and active remediation of the VO contamination in this area has been proposed.

Arsynco states that the requirement to excavate stained soils is premature. Additional soil and groundwater sampling was completed within Area V to better characterize the type and extent of contamination in this area. Arsynco proposed to actively remediate the noted areas of VO contamination within Area V in the RAW.

Arsynco believes the reference to french drain is the trenches within the building floor. As stated previously, all trenches, drains and other drainage system components were investigated, traced and removed. No further action is proposed.

Arsynco does not have specific information regarding the spill of several hundred pounds of caustic soda. Drums of flake caustic soda were stored in this area and a spill could have occurred. Arsynco states that this material would have been in a solid flake form that was simply shoveled up and recovered. Any residues that remained would have been neutralized. No further action is proposed.

Arsynco does not have specific information regarding a solid material being spilled between the tank farm and Building 14. Building 14 was used as a maintenance shop, and the tank farm did not contain any solid materials. Arsynco states that based on the language of the 1978 inspection report, it would appear that no significant attempt was made during the inspection to identify the solid material. Therefore, it must not have been a significant concern to the inspector. Samples collected in the vicinity of Building 14 and the tank farm area did not identify the presence of any type of solid form contaminant. Since the quality of soil in this area of the site has been fully characterized, no further action is proposed.

Arsynco states that the Department's comments regarding soil sample V-6 are incorrect. No VOs were detected in either soil sample (V-5 or V-6) at levels above the IGWSCC. Therefore, no additional wells are proposed in this area. However, Arsynco intends to install a shallow well near the northeast corner of Tract 2, further to the east and downgradient of Area V.

Comments

Regarding delineation, soil sample ARSD-1, 6/21/91, 1.0-1.5', was not analyzed for volatiles. Soil sample ARSD-44B, 6/25/91, 2.75-3.25', was not analyzed for volatiles. Soil sample ARSD-41B (2.5-3.0') had xylene (total): 720 ppm. The RDCSCC is 410 ppm. So vertical delineation at ARSD-41 for xylene (total) has not been completed. Soil sample location V-11, 06/10/1994, 0.5-1, was not sampled at a depth of 2.5-3.0'. Therefore, we can not conclude, based on incomplete delineation sampling, that xylene (total) has not migrated off-site to the north. Soil samples ARSD-33 (1.0-1.5') had 9,300 ppm xylenes (total) and soil sample DJS-009 had 18,000 ppm xylenes (total). Soil sample DJS-009 was not laterally delineated to the north. Both of these samples are north of the property boundary. Soil sample ARSD-47, which is on the western boundary of Area V and which is north of soil sample V-14, was not analyzed for volatile organics. Therefore, the Department's comment is still valid.

Regarding stained soils, Arsynco stated that additional soil sampling was completed. Based on these results, Arsynco has proposed to actively remediate areas of VO contamination within Area V. Arsynco has failed to state whether the stained soils were sampled or are included in the proposed active remediation. If the stained soils are not to be included in the remediation, Arsynco shall identify which, if any, soil samples were collected from the stained areas. If the stained areas are not to be included in the remediation and have not been sampled, Arsynco shall sample these areas pursuant to N.J.A.C. 7:26E. Sample analysis shall include PP+40.

The comments regarding no further action for the french drains is conditionally acceptable. If after remediation of the sources of VOs in soil and groundwater, groundwater VO standards are still being exceeded, then Arsynco may be required to conduct additional soil sampling and delineation of the sources of VOs in soil.

The no further action proposal for spills identified in the 1978 site inspection report by the Department are not acceptable. Regarding the caustic soda spill, it is believed that if the practice of it being "simply shoveled up and recovered" had been implemented, it would not have been identified in the report. Even

once identified by the Department, if it had been addressed while the inspector was there, it would more than likely have been noted in the inspection report. Regarding the solid material noted between Building 14 and the tank farm, the fact that it was not identified and was therefore not a significant concern is more likely due to no one at the site being able to identify the material. Therefore, Arsynco shall review their internal accident report to see if they can document the spills and their response(s) to the Department's inspection report.

Regarding the well requirement at soil sample V-6, the reference to soil sample V-5 containing elevated levels of toluene was apparently in error. The correct reference to a contaminated sample upgradient of V6 is PP-5. PP-5 is located west/southwest of V-6 and contained 1,100 ppm toluene, 390 ppm xylene and 125 ppm PCBs. However, the requirement for a well at V-6 will be deleted. This is because there is reportedly no fill above the meadow mat on Tract 2 and groundwater flow is therefore anticipated to be similar to deep flow, which is mainly east in this areas of the site.

However, a shallow well is now required at the location of soil sample DJS009. This is required as samples DJS009 and ARSD33 contained very high levels of ethylbenzene and xylene. This contamination may be due to a source closer to Building 19 being pulled off-site by the Henkel recovery system. Note that the soil samples in question were located on the west side (Arsynco side) of the drainage ditch located on the north side of Building 19. This is the ditch that reportedly collected drainage from the adjacent Henkel property). If contamination is detected in this well above the GWQS, this shall be delineated to the east/northeast and vertically if appropriate.

VI. FORMER POND AREA

1. Former Pond SI/RI Sampling

Arsynco was previously required to explain how contaminants migrated into native soils, such as samples VI-5, VI-9N, VI-11N, etc. In addition, the Department pointed out that metals with elevated levels in sample VI-5 were incorrectly identified in the narrative as beryllium, cadmium and nickel. The metals with elevated levels were arsenic, copper, lead, mercury and zinc. Sample VI-PD2 was incorrectly identified as having an elevated level of methylene chloride. Sample VI-PD2 actually had elevated levels of benzene and copper. Arsynco was required to complete delineation of contamination found in sample VI-PD5(3) to the west.

Response

Arsynco states that the reference to "native soil layer" was misleading. The soil layer identified and sampled at the VI-9N and VI-11N locations was the first 6-inches of material immediately below the visually distinguishable sediment layer at the base of the pond. The increment of soil at location VI-9N corresponded to the top 6-inches of the upper part of the clay liner at the base of the pond structure. The soil at location VI-11N corresponded to an increment just below the bottom of the distinguishable sediment layer; the clay liner was encountered approximately 12 inches into the clay layer. Neither sample was obtained from "native soil" and given the fact that both of these samples were in contact with the visually distinguishable sediment layer, it is not surprising that some contamination was detected in these samples. Arsynco states the data clearly demonstrate that vertical migration into the underlying clay liner has not occurred.

Arsynco points out that sample VI-5 was obtained from what appeared to be native soil at 4.0-4.5 feet below previous sample PP-4. These samples were located adjacent to the pond headwall/outflow, outside the boundaries of the former pond structure and within the area of the former swale/ditch that connected the pond to the drainage ditches on Tract 2. Contamination in this area is likely related to a combination

of factors, including fill material or historic fill material, historic site operations or contaminated sediments or water from off-site sources that might have migrated into this area (through Tract 2).

Regarding the additional delineation required for soil sample VI-PD5(3), Arsynco states that cis(1,2)dichloroethene (cis(1,2)DCE) was identified at a concentration of 47 ppm in this soil sample at a depth of 5.5-6.0 feet below surface grade to the west of the former pond structure. This level is below the NRDCSCC (1,000 ppm) and the RDCSCC (79 ppm), but is above the IGWSCC (1 ppm). Delineation of the cis(1,2)DCE has been documented to the east (samples VI-PD3 and VI-PD4), to the north (sample VI-PD5(1)) and to the south (sample VI-PD5(2)). Arsynco proposes to collect an additional soil sample to document the extent of contamination to the west in this area.

Comments
The explanation regarding samples VI-9N, VI-11N and VI-5 is acceptable. The proposal to collect an additional soil sample west of sample VI-PD5(3) to complete delineation of cis(1.2)DCE is acceptable. This sample shall be collected from the 5.5-6.0 feet below ground surface (bgs) interval.

2. SI/RI Summary

The Department previously required a well to be installed at the location of soil sample TR2-4. The Department required that the contaminated sediment layer within the pond be removed. The Department also pointed out that there may be times when the pond will retain too much rainfall/runoff that it could overflow, and the resulting discharge may spread contamination. In addition, although this layer does not appear to have impacted groundwater to date, the clay liner will likely shrink and crack now that it is no longer kept damp. This may create a conduit for contamination from the sediment to enter the groundwater.

Response
In regards to the Department's requirement for a well at location TR2-4, Arsynco states that due to the swampy nature of this area it is not accessible to vehicles or well drilling equipment. In addition, any shallow well installed in this area would not be representative of groundwater quality but would rather monitor the poor quality, tidal, saline surface water quality of the tidal ditches. Therefore, Arsynco does not propose to install a monitoring well point in this area. Arsynco states that, as noted in subsequent sections, additional monitoring wells will be installed directly downgradient of this area, along the eastern section of Tract 2 that borders 16th Street.

Regarding Department concerns about the clay liner shrinking and cracking, Arsynco proposes to collect shelby tube samples from the upper two feet of clay liner at two locations within the center portion of the former pond area (around sample locations VI-12 and VI-13. These samples will be tested for various geotechnical properties to document the current physical characteristics of the liner (permeability, moisture retention curve, liquid plastic and shrinkage limit) to determine whether the liner is suitable and sustainable for continued containment of the material present.

Regarding the Department's concern that the pond could potential overflow is a relatively easy concern to control. Water level monitoring point could be installed to monitor the elevation of any water within the pond structure. In addition, a water extraction system could be designed to control the level of water within the former pond and prevent any potential overflow. Extracted water would likely be treated and disposed off-site. A concern that significant water could accumulate within the pond would also seem to diminish the concern that the clay liner would become dry.

Comments
Based on the information submitted and the additional proposed wells, the Department is withdrawing the requirement for a well at TR2-4.

The Department believes that the proposed Shelby Tube sampling may be premature, as the pond sediments may have to be removed based on the following:

- Based on information presented in this document, the integrity of the clay liner has not actually been verified, as sediments remain within the pond to a depth of approximately four feet. Arsynco shall verify the integrity of the liner below the sediments (visually). In addition, Arsynco shall verify that there is in fact a constructed clay "liner" rather than the pond being keyed into a naturally occurring meadow mat or clay.

- The pond sediments were apparently not sampled for PCBs during either the pond investigation or the PCB grid sampling (the grid nodes within the pond were not sampled). As this pond received wastewater from on and off-site, the sediments shall be sampled for PCBs, dioxins and furans using USEPA Method 8280 at a minimum of three locations. Depending on the results of this investigation, the pond sediments may have to be removed in any case. No additional wells are required at this time, as MW9S/D and MW10S/D are downgradient of the pond and have historically been fairly clean.

If shelby tube sampling is conducted, a minimum of four locations shall be sampled. In the event that the clay is too dehydrated and the shelby tube may not function properly, Arsynco shall be prepared to use alternative clay sampling devices, including but not limited to, split spoon sampling.

The Department would like to point out that if Arsynco makes removing the contaminated sediments a priority, then concerns about cracking, overflowing, PCB analysis, etc. become non-issues.

VII – PRIMARY TANK FARM AREA

1. Primary Tank Farm SI/RI Sampling

The Department previously required Arsynco to delineate sample VII-1 horizontally and vertically for PHC's. Arsynco was required to identify at what depth the VO samples were collected. In addition, soil sample VII-8 was to be delineated horizontally and vertically for PHC's. Regarding samples VII-11, VII-12 and VII-13, Arsynco was required to clarify what the VO sample depth was relative to the water table. In addition, Arsynco was to explain why sample VII-13 was not sampled for PHC's.

On September 21, 1985, Arsynco reported a leak of approximately 3,600 gallons of 20% sodium hydroxide solution in the tank farm area. Approximately 500 gallons seeped through cracks in the dike and onto the ground. The solution was neutralized with sulfuric and acetic acid. The neutralized waste was washed into a ditch which drains to Berry's Creek. Arsynco was required to address this spill in accordance with N.J.A.C. 7:26E. This remains outstanding.

On November 14, 1989, Arsynco reported that approximately 275 gallons of 32% hydrochloric acid was released from a storage tank. It was reported that all the spilled material was contained within the tank's diking system. The material was neutralized with lime and discharged to the on-site treatment pit. Arsynco was required to address this spill in accordance with N.J.A.C. 7:26E. This remains outstanding.

The main contaminants detected in soil were ethylbenzene and xylene. Methylene chloride, chloroform and toluene were also detected sporadically. Floating product was detected in the #6 fuel oil UST excavation,

however, this was reportedly removed with absorbent material. Wells MW-5S/5D are located in this AOC and contain BTEX, methylene chloride, and isophorone.

The location of the #6 fuel oil UST is not clear on the maps provided. Arsynco shall include a map showing the locations of all tanks in AOC 7. If wells MW-5S/5D are not within ten feet downgradient of the #6 fuel oil tank, an additional well was to be installed there. Analytical parameters shall be VO+10, BN+15, PPM and PCBs.

Response
Arsynco states that the level of PHC (19,400 ppm) identified in soil sample VII-1 has been delineated to the north (samples VII-2 through BII-7), to the west (sample VII-17), to the south (samples VII-18 and PP-16) and to the east (sample VII-16). Arsynco proposes to collect a sample below the location of sample VII-1 to document the vertical extent of PHC contamination in this area.

Arsynco has submitted a table summarizing all VO soil sample depths.

Arsynco states that the PHC identified in soil sample VII-8 (11,800 ppm) has been delineated to the east (sample VII-16), to the south (sample VII-9) and to the west (sample VII-17). Arsynco proposes to collect an additional sample below the location of sample VII-1 to document the vertical extent of PHC contamination in this area. A sample will be collected to the north of this area to document the horizontal extent of PHC's in that direction.

Arsynco states that sample VII-13 was not analyzed for PHC because VOs were the contaminants of concern in the former main tank farm area based on the materials formerly stored in this area and historic sample data. In addition, sample VII-13 was not intended to be a RI sample for the purposes of delineating the PHC levels identified in sample VII-1.

Regarding the reported leak of the 20% sodium hydroxide solution, Arsynco states that the remainder of the spilled material was contained within the diked area of the tank farm east of Building 19. The caustic soda solution contains no VOs by volume and has a pH of approximately 14. Arsynco is unaware of any common Priority Pollutant List, Target Compound List or other reasonable parameter that would be useful in assessing the area where this spill occurred for potential impacts related to a discharge of caustic soda solution. No further action is proposed for this area.

Regarding the spill of 32% hydrochloric acid, Arsynco states that it was previously noted that the spilled material was contained within the secondary containment dike of the tank farm. The contained material was neutralized and transferred to the ETB. No further action is proposed.

Regarding the #6 oil tank, Arsynco points out that it was an AST, not an UST as noted by the Department. Maps which showed the location of all AST's on the site were provided in both the RIR and in the SES.

Arsynco states that wells MW-5S/MW-5D are located approximately 90 feet east of the former #6 oil AST (Tank 58). Since separate phase product was present in this area following the removal of the concrete tank supports, Arsynco will install a single well point in accordance with N.J.A.C. 7:26E. The well will be analyzed for VO+10, BN+15, PPM and PCBs.

Comments
Regarding the proposal for soil sample VII-1, this is conditionally acceptable. Soil sample VII-17, 1.0-1.5', can not be used to horizontally delineate VII-1, 0.0-0.5', because it was collected at a different depth.

Soil sample VII-18, 1.5-2.0', can not be used to horizontally delineate VII-1, 0.0-0.5', because it was collected at a different depth. Soil sample VII-16, 0.5-1.0', can not be used to horizontally delineate VII-1, 0.0-0.5', because it was collected at a different depth. Arsynco shall collect soil samples at these three locations at 0.0-0.5' and they shall analyze the soil samples for TPHCs, and PAHs pursuant to N.J.A.C. 7:26E, Table 2-1, Footnote 8, as required. Arsynco shall collect soil samples at location VII-1 at a depth below 0.5' and they shall analyze the soil sample for TPHCs, and PAHs pursuant to Table 2-1, Footnote 8, as required.

Regarding the VO soil sample depths, the Department has confirmed that the table provided in Appendix B summarized the depths at which all VOC soil samples were collected.

Regarding the proposal for soil sample VII-8, this is conditionally acceptable. Soil samples VII-16 and VII-9 can not be used because they were collected at a different depth from soil sample VII-8. Arsynco shall collect soil samples at locations VII-16, VII-9 and to the north of VII-8 at a depth of 1.0-1.5'. Arsynco shall collect an additional sample below the location of sample VII-8 to document the vertical extent of PHC contamination in this area. Arsynco shall analyze the soil samples for PHCs, and PAHs pursuant to N.J.A.C. 7:26E, Table 2-1, Footnote 8, as required.

The explanation for not sampling VII-13 for PHCs is acceptable.

Regarding the 20% sodium hydroxide solution spill, this has the potential to form soluble complex ions with metals, which can then migrate or be transported into groundwater. Arsynco shall provide more information concerning the exact location where the approximately 500 gallons seeped through cracks in the dike and onto the ground.

Regarding the 32% hydrochloric acid spill response, Arsynco shall submit copy of the documentation which was used as the basis of the explanation.

The Department acknowledges Arsynco's notification and clarification that the #6 oil tank (tank 58) was an aboveground storage tank (AST), not an UST as noted in the Department's letter.

The proposed well at the #6 fuel oil AST is acceptable, as are the analytical parameters. If contamination is detected, it shall be delineated vertically and horizontally. All wells shall be checked for product prior to sampling.

VIII – SOUTHERN PORTION OF SITE

The Department previously commented that the former RCRA storage area was much larger than indicated in the SES. Arsynco was required to propose additional sampling to more accurately characterize this area.

Response

Arsynco states that they have no knowledge of the RCRA storage area being significantly larger than the area shown in the SES and RIR. Historic data indicates that seven soil samples (1 sample per 714 square feet) were collected in the vicinity of this area. The historic sample data demonstrated that only PCBs and arsenic were present in the soils in this area. These contaminants were not associated with Arsynco's former use of this area for the proper storage of RCRA regulated waste material. Additional soil samples were collected approximately 40 feet further east of the noted boundaries of the storage area and also collected at locations corresponding to approximately 30 feet north and northeast of the boundaries of the

former storage area. Arsynco states that the sampling frequency meets the requirements outlined in N.J.A.C. 7:26E. No further sampling is proposed.

Comments
This is conditionally acceptable. Delineation sampling shall be conducted to the west and south of this area of concern for the purposes of a Deed Notice. Additional investigation of PCBs and arsenic may be necessary pending the Department's conclusions generated from the fill investigation.

1. SI/RI Sampling Program

The Department previously stated that soil sample PP-1 was not representative of this section of Area VIII. Additional soil sampling will be required in this section because process waste materials (still bottom wastes) are known to have been deposited.

Arsynco had claimed that the extent of metals (Pb) could be documented with sample VIII-9E (to the east). But further east, sample TR2-3 has 830 ppm of Pb, sample TR2-4 has 710 ppm of Pb, sample TR2-7 has 1,300 ppm of Pb and sample TR2-15 has 880 ppm of Pb. Therefore, sample VIII-9E does not delineate Pb to the east. Additional delineation sampling was required.

In addition, Arsynco was required to re-sample at sample location VIII-1 at a depth of 18-24" beneath the concrete base of the containment area. Only VO+10 analysis needed to be performed. The sample was to be biased toward any areas where the integrity of the pad may have been in question. Arsynco was also required to discuss the integrity of each pad.

Response
Regarding the sampling requirements around soil sample PP-1, Arsynco states that exploratory, observation trenches and observation test pits were installed throughout the southern area of the site. One of the purposes of these trenches/pits was to document the overall physical characteristics and composition of fill material in Area VIII. Approximately 28 pits/trenches were installed in this area of the property. These pits/trenches were successful in delineating the physical boundaries of the process-type waste fill area.

Soil samples PP-1 and PP-2 were collected within the portion of Area VIII where process-type wastes are present; numerous delineation samples were also obtained from the areas surrounding initial sample PP-2. Soil samples were also collected from the areas of typical fill material encountered slightly beyond the boundaries of the process-type waste fill material area.

To more throughly characterize the fill material in the area where process-type wastes were identified, Arsynco proposes to collect five additional samples from within the area of process waste fill material. The actual sample depths will be field determined based on the characteristics of the fill material encountered and biased toward areas of greatest, suspected contamination. These samples will be analyzed for VO+10, BN+15, PPM and PHC.

Regarding the required delineation for lead, Arsynco proposes to collect a series of three additional samples along the east side of Tract 2 to document the levels of lead to the east of the referenced samples. The proposed locations of the three additional samples will correspond to the approximate locations of previous samples TR2-18, TR2-19 and TR2-20.

Regarding the requirement to re-sample at sample location VIII-1, Arsynco states that this soil sample was collected from beneath the base of the diked, concrete containment area of Tank 73. Prior to

removal, the concrete containment area was inspected and there was no indication of cracking or deterioration. In addition, the containment area for this tank did not contain a drainage discharge point, no evidence of tank leakage or spillage was observed in the area surrounding the tank and no history of spillage exists for this area. The base of the containment area consisted of 12-inches of concrete and 6-inches of bluestone immediately below the concrete base. Sample VIII-1 was collected from the soil below the bluestone layer, corresponding to the 6-12 inch increment below the concrete base of the containment area, and 18-24 inches below the surface of the concrete pad. Based on this information, Arsynco believes that sample VIII-1 is representative of the soil conditions in relation to tank 73. Arsynco requests the Department to reconsider the requirement to resample this area.

Regarding the requirement to discuss the integrity of each pad, Arsynco states that the integrity of the concrete floor slabs of Building 17 and Building 18 were inspected during the investigation. The floor slab at each location was found to be intact, with no evidence of cracking or deterioration. The floor slabs for both buildings were documented to be constructed of 12 inches of concrete

Comments

The proposal to collect additional samples in the area of process waste fill material is conditionally acceptable.

1. Arsynco shall explain what specific indicators allow Arsynco to recognize process-type wastes in soil. Arsynco shall explain how they will determine that the worst-case location has been identified.
2. Pursuant to N.J.A.C. 7:26E-2.1(c)2, TCL+30/TAL or PP+40 scans and pH are required. PP+40 includes AE+Tics, for a total of VO+15 and BN/AE+25. Arsynco shall revise the analysis list.
3. Pursuant to N.J.A.C. 7:26E-3.4(a)2, samples shall be biased based on professional judgement, area history, discolored soil, stressed vegetation, drainage patterns, field instrument measurements, odor, or other field indicators. Arsynco shall specify which indicators will be used for each of the four groups of pollutants, VO+15, BN/AE+25, PPM and PHC. Arsynco may use field-based site characterization technologies including, but not limited to, those discussed in *EPA CERCLA Education Center Technology Innovation Office*, Field-Based Site Characterization Technologies Course, Participant Manual, Undated.

The proposal to collect additional samples to delineate lead is conditionally acceptable. Arsynco shall laterally and vertically delineate the lead to the RDCSCC. The vertical delineation may require soil sampling below the top of the water table.

The proposal for no additional sampling at location VIII-1 is acceptable based on the information submitted.

The response regarding the integrity of the pads is acceptable.

AREA IX – PCB SI/RI GRID SAMPLING PROGRAM

1. SI/RI Summary

The Department previously required Arsynco to install a well within ten feet downgradient of soil sample G30. This well was to be sampled for VO+10, BN+15, PPM and PCBs.

Response

Arsynco states that they have proposed to excavate and remove all material with levels of PCBs above 500 ppm and to consolidate all material with levels of PCBs over 50 ppm that remains, including the material located at sample grid G-30. Since the area of G-30 will be entirely excavated, Arsynco

proposes to install an additional well in this area following the excavation activities. In addition, additional shallow wells are proposed in slightly further downgradient locations.

Comments
This is acceptable. See General Comments section below for dioxin and furan sampling requirements.

AREA X – TRACT 2 (EASTERN SIDE OF SITE)

1. Tract 2 – SI/RI Summary

The Department previously required Arsynco to conduct a baseline ecological evaluation for this area of concern. Arsynco was to sample further north beyond the property line to delineate the arsenic found in sample TR2-22.

Response
Arsynco states that Tract 2 receives a daily inflow of poor quality water and sediments from Berry's Creek and the Hackensack River. Both surface water and sediments in these systems are known to be contaminated. In addition, for nearly a century Tract 2 has also received daily discharges from neighboring chemical manufacturing and industrial properties, as well as regional drainage from most of the nearby, developed properties and roadways located both upstream and downstream of the site. As a result, the sources(s) of much of the contamination within Tract 2 cannot necessarily be confirmed and is not necessarily related to the Arsynco site. Arsynco will investigate the aspects and methodologies associated with a baseline ecological evaluation of this property with respect to the risks associated with the former operations conducted at the subject site.

Regarding the additional sampling required for arsenic found in sample TR2-22, Arsynco states that nearly all areas of the site contain mostly low and sporadic levels of arsenic within the fill material. Highest levels of arsenic were identified in the southern portion of the gravel parking lot adjacent to 13th Street, and the sediments on Tract 2. Process operations were not conducted in either of these areas, and no significant levels of arsenic were identified in soils in any of the plant production areas or in areas of known sources of process related contamination. The storage or use of arsenic compounds is not known to have occurred at the site. Arsynco states that the levels of arsenic identified are not believed to be associated with former site operations.

Comments
This is not acceptable. The baseline ecological evaluation must take into consideration all contamination in a specific area, not just what is assumed or determined to be from a specific source. The Department recommends that before Arsynco begins conducting a baseline ecological evaluation for Tract 2 that they first obtain a copy of Guidance for Sediment Quality Evaluations, New Jersey Department of Environmental Protection, November 1998.

Regarding levels of arsenic in this area, this property has been used continuously for a variety of chemical manufacturing operations since the early 1900s. Arsynco has owned and operated the property since 1969. However, the exact nature of previous site operations is largely unknown. Therefore, arsenic containing compounds may have been used in site operations prior to 1969. There may have been site-related spills and discharges of arsenic containing compounds onto the ground prior to 1969. Based upon a review of the tables in only the RI report, the following soil samples had concentrations of arsenic greater than the RDCSCC in areas other than Tract 2:

I-1, 0.0-0.5, 113 ppm
I-1A, 0-0.5, 155 ppm
I-1B, 0-0.5, 25.5 ppm
I-1E, 4.0-4.5, 39.8 ppm
VI-1, 0-0.5, 68.6 ppm
VI-5, 4.0-4.5, 80.3 ppm
VI-16, 0-0.5, 29 ppm
VII-8, 1.0-1.5, 26.4 ppm
VIII-15, 0.0-0.5, 25.3 ppm

Based upon a review and analysis of this data, the Department conditionally accepts Arsynco's proposal, pending the results of the soil sampling to be conducted in Area VIII on process-type wastes.

XI. AREA XI – GROUNDWATER

The Department previously issued the following comments:

a) Arsynco is advised that MW-7S may not be an acceptable background well, as it is located downgradient from the RCRA storage area and/or the former storage container area. Note that groundwater flow in the shallow unit is somewhat variable, indicating that MW-7S is downgradient of the storage container area and at other times downgradient of the RCRA storage area. Arsynco shall either collect shallow cone penetrometer samples along the upgradient (western) property line to show an off-site source or delineate the VOs in MW-7S.

b) Arsynco is advised that MW-6D may not be an acceptable background well, as the July 1996 contour map indicates flow from the northwest, which placed MW-6D downgradient of the former production pond. In addition, MW-12D, which is more fully downgradient of the site than MW-6D exhibited much higher concentrations of bis(2-chloroethyl) ether than did MW-6D. This is further evidence that MW-6D is not an upgradient well and that the bis(2-chloroethyl) ether in both MW-6D and MW-12D is attributable to the site. To make this determination, Arsynco shall perform cone penetrometer sampling at two depths (above and below the meadow mat) along the southwest perimeter of the site. A minimum of three samples shall be located south of Building 20, the production pond and Building 16. Another two samples shall be located along the property line west of 13th Street. Samples shall be analyzed for VO+10 and BN+15.

c) Arsynco is further advised that MW-16D is definitely not an acceptable background well, as it is downgradient of several AOC's and is in close proximity to the former production well. Pumping of the production well may have caused contamination to migrate to MW-16D from various areas of the site.

d) Arsynco states that the groundwater is tidally influenced, although this influence of groundwater flow is reportedly minimal. Arsynco shall perform continuous water level monitoring for a 24 hour period to evaluate the effect of the tides. Shallow and deep wells shall be included, select wells may be used. Shallow and deep contour maps shall be generated for the maximum effect of high and low tide on site groundwater. (Note: There will likely be some time lapse between actual high and low tide and the maximum high and low water levels on the site).

e) Arsynco is advised that additional groundwater work may be required based on the results of sampling of the above required wells and the continuous water level measurements.

f) Downgradient delineation is required off-site to the east/southeast, as MW-9S contained 20 ppb PCBs, MW-10D contained 29 ppb MeCl, MW-13S contained 5.1 ppb PCBs and 3,200 ppb phenols, MW-13D

contained chloroform and chlorobenzene above background concentrations (defined by MW-15S/15D), MW-12S contained 7,500 ppb MeCl and MW-12D contained 9,800 ppb bis(2-chloroethyl)ether. Although some of these concentrations decreased over time, contamination may be present at higher levels downgradient. Therefore, Arsynco shall install one shallow well downgradient of MW-9S, one well pair downgradient of MW-13S/13D and one well pair downgradient of MW-12/12D. These wells shall be sampled for VO+10, BN+15, PPM and PCBs. Note that while MW-14D appears to be upgradient of site operations according to the contour maps provided, MW-14S is not upgradient, due to an apparent groundwater divide in the shallow unit in the vicinity of Building 8.

g) Arsynco shall install a deeper well within 15 feet of the MW-5S/5D well pair for vertical delineation. Although concentrations decreased over the most recent three rounds, MW-5D contained 41,000 ppb MeCl in February 1995 and 1,840 ppb MeCl in April 1996.

h) In the future, contour maps for the shallow and deep aquifers shall be generated from water levels collected concurrent with each sampling round. Maps shall be included with each submittal. In addition, depth to water measurements, groundwater elevation, top of inner casing elevation and total depth of well shall be submitted in tabular format for each sampling round.

i) Additional groundwater work may be required based on additional characterization of the fill.

Response

a) Arsynco reiterates their position that MW7S is an acceptable background well. However, Arsynco does propose an additional background sample northeast of MW7S, at the approximate location of soil sample PP-14. The sample will be collected from a temporary, narrow diameter well point using GeoProbe methods and analyzed for VO+10 and arsenic.

b) Arsynco states that deep groundwater flow at MW6D is either from northwest to southeast or from west to east and that overall flow is from west to east. Therefore, the five groundwater sampling locations required by the Department along the western property boundary are not necessary. However, Arsynco does propose to install one deep well upgradient of MW16D (at PP-14) to evaluate background water quality. This well will also help evaluate groundwater flow and confirm that MW6D is a background well. This well will be sampled for VO+10 and BN+15.

c) Arsynso states that MW16D is an appropriately placed background well. This is because the site production well, located near MW16D, likely did not influence groundwater flow (screened from 140-160 feet and had a low capacity) and "upgradient" soils did not contain the contaminants detected in MW16D (chlorinated solvents). As stated above, Arsynco does propose to install a deep background well along the western property line, at the approximate location of PP14.

d) Arsynco states that continuous water levels have been collected twice in the past to evaluate the effect of the tides on groundwater flow. The first continuous water level monitoring was conducted in 1992 and lasted five days. The second event was performed in 1995 and was done for seven days. Therefore, Arsynco does not propose to perform additional continuous water level monitoring.

e) In response to the requirement to delineate groundwater east of Tract 1, Arsynco proposes the following wells: One shallow well will be installed in the northeast corner of Tract 2, downgradient of MW9S and Area V. The well will be sampled for VO+10, PCBs and PPM. Arsynco notes, although PCBs were detected in MW9S (20 ppb) originally, this was right after the well was installed and may have been due to fines in the sample. This is substantiated by the fact that PCBs were not detected in

MW9S in two subsequent rounds. In addition, PCBs have very low solubilities, therefore, Arsynco does not believe that PCBs are a concern in groundwater.

Arsynco also proposes to install a shallow/deep well cluster at the southeast corner of Tract 2, downgradient of the MW12S/D well cluster. The deep well will also be downgradient of MW13D. The shallow well will be sampled for VO+10, PCBs and nickel. The deep well will be sampled for VO+15, BN+15 and arsenic.

An additional shallow/deep well cluster is proposed approximately 200 feet north of the southeast corner of Tract 2 (eastern side). This location is downgradient of MW13S and is also more fully downgradient the plant production area. These wells will be sampled for VO+10, PCBs, PPM and phenols.

A deeper well is also proposed within 15 feet downgradient of MW15D for vertical delineation of historically detected methylene chloride. The well will be sampled for VO+10.

Comments

a) This issue is addressed above in item Area II-RCRA Storage Area.

b) As previously stated, the only way to prove that groundwater contamination is coming onto a site is with an appropriately placed background well. Arsynco states that there is a northwest to southeast component of flow at MW6D (at least part of the time). This is precisely why the Department is questioning whether MW6D is an appropriate background well. In addition, a background well located upgradient of MW16D is not sufficient to demonstrate that MW6D is a background well. When flow is northwest to southeast, AOC 1 is located between MW6D and the proposed "background" well. Therefore, a deep sample is still required west/northwest of MW6D.

c) Well MW16D is not a background well. It is located in the center of the site. It appears that Arsynco is attempting to delineate groundwater contamination with soil data, which is not acceptable. The IGWSCC are not indicative of whether groundwater is impacted, they are concentrations that are expected to continue to act as a source if not removed. Therefore, the fact that soils are below the IGWSCC does not necessarily mean that groundwater will be clean. Contamination often enters the groundwater through narrow and circuitous pathways that may not be detected in one soil sample or even a large number of soil samples. In addition, contaminants are often discharged directly to the groundwater via septic systems, lagoons, etc. This is particularly true at this site, since groundwater is so shallow. In any case, the Department does not allow the characterization of groundwater using soil samples. The proposal for a deep upgradient background well is acceptable, however, it shall be located farther west/northwest of site areas of concern. The well shall be sampled for PPM and PCBs in addition to VO+10 and BN+15.

d) Acceptable.

e) The well downgradient of MW9S is generally acceptable. However, it has come to the attention of the Department that fill reportedly is not present above the meadow mat on Tract 2. Therefore, well pairs may not be necessary downgradient of MW12S/D and MW13S/D. Arsynco shall perform continuous split spoon sampling at these two proposed locations to determine if this is the case. If there is not perched water above the meadow mat, only one well would be required at each location. If this is the case, the wells shall be screened across first water, i.e., if first water is in the meadow mat that unit shall be screened.

As a ditch apparently bisects Tract 2, Arsynco shall also sample any surface water that is present in the ditch. (Arsynco shall clarify whether this is usually dry, contains water periodically, etc.). Analytical parameters shall be PP+40 minus pesticides. In addition, BN+15 shall be included in the monitor well analyses. The Department acknowledges that if PAHs are present, they may be due to historic fill. However, other BNs, including isophorone, which was detected at high concentrations on site, may be present. Arsynco's argument regarding the original hit of PCBs in MW9S is reasonable. However, it is possible for PCBs to impact groundwater, therefore, PCB analysis has been required at new wells required above.

The proposal for a well cluster downgradient of the MW12 and MW13 clusters is acceptable, however, to be more directly downgradient the proposed wells shall be relocated farther to the south of Tract 2. Based on historic contour maps, this is true for both the shallow and deep wells. BN+15 and PPM shall be included in the shallow well analysis. PCBs and PPM shall be included in the deep well analysis. These additional parameters are being required as the well cluster is downgradient of the main portion of the site and contaminants may have migrated off-site as a slug.

The proposed cluster 200 feet north of the southeast corner of Tract 2 is acceptable. Analytical parameters shall be VO+15, BN+15, PPM, phenols and PCBs. Surface water samples shall be collected just south of the former pond outflow to Tract 2 and at the southeast corner of the Tract 2 ditch. Sampling parameters shall be PP+40 minus pesticides.

The proposed deeper well within 15 feet of MW5D is acceptable. The well shall be constructed with ten feet of screen open immediately above either the clay purported to exist below the red sand unit, or the top of bedrock. If a substantial clay layer (two or more feet thick) is identified above the anticipated depth, the well shall be screened to the top of that clay. Well Certification Forms A & B shall be submitted for all new wells installed. These forms shall be included with the report of the first round of data from the wells.

1. Proposed Remedial Action Workplan – Historic Fill Material

The Department previously stated that Arsynco is attributing a majority of the contamination in Tract 1 and all contamination in the northern and eastern areas of the property to historic fill. It is unclear how Arsynco determined that this contamination was due to historic fill. Arsynco is required to determine and justify exactly what portion and levels of contamination is due to historic fill and what portion and levels of contamination is due to historic operations. With the number of areas of concerns (tanks, spills, discharges, etc.) it is hard to believe that historic fill is solely responsible for all the contamination in Tract 1 with the exception of the one area parcel which contains process wastes which were buried.

In addition, Arsynco will need to address areas attributable to historic fill (as well as those areas determined to be attributable to historic operations) where levels are impacting groundwater.

Response

Arsynco states that they did not state or imply that all contamination in Tract 1 is due to historic fill. Arsynco acknowledges that there is extensive VO and PCB contamination on site that is related to past operations. The only contaminants that Arsynco attributed to historic fill are BNs, primarily PAHs and a portion of the metals contamination. However, Arsynco notes that some erroneous information regarding metals may have been reported in the RAW. Some of the metals reported in Section 4.1, page 25 of the RAW may not necessarily be attributable to historic fill. Arsynco proposes to conduct a more extensive review of that data and provide a revised summary of the pattern and source of each metal identified above the RDCSCC. This will indicate which metals and what concentrations of metals are related to historic fill and which are due to other concerns, i.e, the process waste, etc.

Comments
This is acceptable.

2. Proposed Remedial Action – Fill Material with PCB Levels < 50 ppm

The Department previously stated that PCBs are clearly associated with historic site operations. Arsynco was required to determine and justify exactly what portion and levels of PCB contamination was due to historic fill and what portion and levels of contamination was due to historic operations.

Response
In regard to PCBs in the historic fill, Arsynco states that some of these PCBs are believed to have been in the historic fill used to fill the area. However, Arsynco also acknowledges that there is PCB contamination due to past operations and dumping of process waste. Arsynco believes that PCBs above 50 ppm are generally attributable to the site. As noted above, a remedial action plan for all PCBs above 50 ppm has been submitted to USEPA. The plan consists of removal of PCBs above 500 ppm and solidification of concentrations between 50 and 500 ppm. The RAW submitted to the Department included capping of PCBs between 0.49 ppm and 50 ppm. Arsynco states that the remedy for PCBs in this range would be the same regardless of whether the contamination was due to historic fill or site operations, therefore, evaluation of the source of PCBs below 50 ppm is not proposed.

Comments
The Department agrees that based on the proposed remedial action, differentiating between historic fill and historic operations is not necessary. The Department will wait for USEPA concurrence before issuing approval for this remedial plan.

3. VOC Contamination in Fill and Shallow Ground Water

Arsynco previously stated that elevated levels of VOs are located within a large area that extends from the Main Tank Farm to the north, encompassing Building 6, Building 8, Building 19 and areas surrounding these buildings. This area is stated to be a separate area of concern within the historic fill material. Regarding contamination in other portions of the site, Arsynco was required to determine and justify what is attributable to historic fill and what portion is attributable to site operations. The one area identified as being from site operations is located downgradient from areas exhibiting groundwater contamination. All areas determined to be contributing to groundwater contamination shall be remediated.

The Department also stated that the air sparging system was conceptually acceptable for treatment of VOs above the meadow mat. However, Arsynco was advised that additional wells were required and that the sparging system may have to be expanded based on data from those wells. Following the installation and sampling of the required wells, Arsynco was to submit a proposal for the shallow groundwater outlining any changes. A groundwater monitoring scenario for the proposed remediation was also to be included. Contamination associated with the former leaded gasoline UST and soil sample PP-12 was to be included.

Response
Arsynco notes that they have not indicated that VO contamination within the fill is attributable to historic fill. Excluding the sediments in the former pond and the main VO area, there are only two known areas where VO contamination exceeds the IGWSCC. These areas are at the drum cleaning station (northeast corner of Building 1) and the area of sample PP-12, and the former gasoline UST west of Building 1. Arsynco has proposed to remediate all soil within the main VO area (total VOs above 1000 ppm and individual compounds above respective IGWSCC) and has expanded this area to include the drum

cleaning station. Arsynco has also agreed to include any VO contamination associated with PP-12 and the gasoline UST based on the results of wells proposed at these areas. Arsynco agrees that the treated area may need to be expanded based on the results of wells not yet installed. However, Arsynco does not see the need to postpone installation and operation of the treatment system in the main plume area pending results of additional groundwater samples from other areas of the site. The proposed air sparging, vapor recovery/biorem system is a mobile system and remediation will be conducted in phases (four sub-areas were originally proposed). Therefore, additional areas can be incorporated at a later date if necessary.

Comments

The proposals to include the drum cleaning station and possibly PP-12 and the gasoline UST in the mobile air sparging plan are not acceptable, as it has been determined that contamination is flowing off-site to the northeast. This contamination (MW8S/D and MW15S/D) must be contained and sparging/biorem will not meet that requirement. A line of recovery wells or trenches along the northern property line are recommended for this purpose.

In regard to postponing startup of the remediation while other areas of potential groundwater contamination are investigated, additional monitor wells have been required above based on information provided. If higher concentrations are identified in the groundwater at these locations, this may affect the final decision regarding the use of a mobile system or systems as opposed to a permanent system, or an alternate remedy. This is because sparging may have to be done for an extended period of time at each location (or in each phase) and it is not acceptable to leave areas of groundwater contamination untreated during treatment of another area. If contamination is left untreated and is not contained it will migrate and possibly form a larger plume resulting in the need for remediation of a larger area. Therefore, a remediation proposal is premature at this time, given the new aspects of the case that are coming to light. Arsynco shall evaluate the new wells and updated data and reconsider the applicability of the mobile sparge system

NOTE: If the previously proposed sparging/biorem system is used, wells are required to delineate and monitor the areas to be treated, including the main VO area. Arsynco had proposed to install "wells" (nothing specific) in the RAW and their installation was one of the conditions of the conceptual approval. If sparging/biorem is utilized, these wells would have to be installed prior to startup of the system. Source wells and delineation wells are required so that a baseline sampling round and adequate treatment system monitoring can be performed. The Department anticipates that a number of the wells required herein will be able to be used for this purpose. However, additional wells will also likely be necessary to fully cover the area or areas to be treated. (Arsynco is advised that any free phase detected on the site must be removed prior to sparging to prevent smearing of the product). Based on the above, Arsynco shall complete the well installation and updated sampling, and shall submit an RIR providing the results of the required groundwater investigation. Proposals for either additional groundwater delineation or a revised RAW, whichever is appropriate, shall be included.

5. Contaminated Material Within Former Pond

The Department previously required that the contaminated sediment layer within the pond shall be removed. This area was addressed above in Area VI-Former Pond.

VOCs in Deep Ground Water

The Department previously advised that MW-16D was not an acceptable background well, as it is downgradient of AOC's and is in close proximity to the former production well. Acceptable deep background wells are MW-14D and MW-15D.

The proposal for additional quarterly monitoring to collect data for a natural remediation proposal was generally acceptable. However, Arsynco was advised that this plan may require revision based on the results of the required wells. Arsynco did not specify which wells would be sampled for the proposed parameters or how many quarters would be collected. It was assumed that MW-11D would be sampled, however, MW-5D, MW-8D, MW-12D and MW-13D were to be included. Arsynco was to specify the number of rounds of data they intend to collect. If it is determined that natural remediation is feasible, Arsynco was to re-propose this remedy along with an appropriate monitoring scenario for the deep groundwater.

Response

Arsynco reiterates that MW16D is a background well. Arsynco also states that the former production well near MW16D would have had minimal impact on groundwater flow (at MW16D), as it was not used very often. Reportedly, the main source of production water was recirculation from the non-contact cooling water pond. In addition, the only contaminants detected in MW16D are chlorinated compounds, which were not identified on any upgradient portion of the site. MW15D, which the Department accepted as a background well, has similar levels of chlorinated compounds. The Henkel facility, north of Arsynco, has also reported chlorinated compounds coming onto that site. (A Department review of the Henkel file indicated that chlorinated compounds were present in their production well).

Arsynco proposes to monitor the following wells for natural remediation parameters: source wells MW11D, MW5D and MW8D and upgradient well MW15D and either MW10D or MW13D. MW12D is not proposed, as only PCE, TCE and benzene have been detected and that was in 1995. PCE and TCE were ND in subsequent rounds and benzene was detected at trace levels only. It is proposed that these points be monitored for DO, pH, alkalinity, temperature, CO2, dissolved ferrous iron and redox potential. Source wells MW11D, MW5D and MW8D will also be sampled for VO+10, nitrate, TOC and plate counts and possibly for methane, ethane and ethene. The wells will be sampled for at least an additional five quarters. After completion of this sampling, a revised proposal for natural attenuation and a monitoring program for deep ground water will be submitted.

To support the conclusion that site groundwater should be reclassified a III-B aquifer, Arsynco will collect samples from all site wells for chloride and TDS.

Comments

The issue of MW16D is addressed in Section XI above. As stated above, soil data cannot be used to delineate ground water and additional investigation of the Henkel site is being required. The proposed upgradient well (northwest of the site) is approved above, with the stipulation that it be moved farther west.

The proposal to collect natural remediation parameters is acceptable, however, the Department approved the collection of natural remediation parameters to evaluate the possibility of natural attenuation in the deep zone. This did not constitute a natural remediation approval. It appears from the proposal to collect five quarters of data that Arsynco intends to make a case for a decreasing trend after eight quarters are collected. This would have been premature even if additional work was not being required. However, as

additional wells, etc. are being required, Arsynco shall evaluate the results of the updated sampling round from all wells and propose a strategy for deep groundwater in the revised RAW.

The proposal to sample all site wells for chloride and TDS is acceptable. The TDS and chloride sampling proposed shall be collected during the updated round. Arsynco is advised that a III-B classification may not significantly change the applicable GWQS if a potential impact to receptors exists.

6. Proposed Remedial Action – Sediments on Tract 2

Arsynco previously stated that sediments on Tract 2 of the property contain elevated levels of metals and PCBs throughout with the exception of the eastern side of this area. Arsynco also stated that the non-sediment Tract 2 material is considered historic fill material. Due to the fact that this land receives a significant amount of drainage on all sides of the property, the precise source of many contaminants in this area of the property is unknown.

The Department previously questioned how Arsynco determined what sediments to excavate in this area of the site. Arsynco was required to explain the criteria for inclusion/exclusion of excavating soils in this area.

In addition, a well was required at the location of soil sample TR2-4, as 200 ppm chlorobenzene was detected in that sample. If groundwater is impacted at that location (by the contaminated soil in Tract 2), then soil may need to be addressed.

Response
It is Arsynco's understanding that it is not acceptable for soils to remain (without remediation) in any area where individual samples exceed 1,000 ppm total VOs (and where individual compounds exceed their appropriate criteria), regardless of site location, use or restrictions. Based on this, Arsynco proposed to actively remediate the area of sediments on Tract 2 that contained the most significant levels of VO contaminants (i.e. over 1,000 ppm total VOs) prior to filling and capping the Tract. The only area within Tract 2 where total VOs were identified in excess of 1,000 ppm was the location of sample VI-16. Due to the swampy nature of the area where sample VI-16 is located, the treatment system that is proposed for the areas of VO contamination on Tract 1 would have no application in the Tract 2 area. Excavation and off-site disposal was proposed for this material.

The extent of sediments outbound from VI-16 (4,187 ppm total VOs) that demonstrated levels of total VOs over 1,000 ppm was determined by establishing a contaminant gradient based on results of adjacent sample TR2-1, TR2-2 and TR2-3. The western limits of the excavation would encompass all sediments that extended to the Tract 1 border.

Comments
This is not acceptable because VOs have not been laterally delineated. South of TR2-3 is TR2-4, which contains 200 ppm chlorobenzene. South of TR2-4 is TR2-10, which was not analyzed for VOs. The results for TR2-8 and TR2-9 were not reported in Table 10. Arsynco shall provide the results for TR2-8 and TR2-9.

GENERAL COMMENTS

1. From 1961 – 1972, Inmont Corporation and Arsynco utilized PCB containing oils as heat transfer fluids in the manufacture of sunscreen products. Heating of PCB oils was conducted at Buildings 1 and 3. The oil heated in Building 3 was then pumped to Building 6. The specific temperature to which the PCB oils were heated was not provided in the 6/97 RIR, however, it is noted that Arsynco switched to steam generated heat

when they discovered the process could be performed at lower temperatures. This indicates that the temperatures applied to the PCB oils was in excess of 212 degrees Fahrenheit prior to switching to steam heat. The heating of PCB oils is a concern, as polyclorinated dibenzo dioxins (PCDDs) and/or polychlorinated dibenzo furans (PCDFs) may form when chlorinated compounds are heated to temperatures between 400 and 800 degrees Fahrenheit.

In addition to the sunscreen process, a fire at Building 1 is mentioned in Section 5.4.1 of the 6/97 RIR (page 40). Apparently the western part of Building 1 was destroyed by this fire, which occurred in approximately 1970. Although Arsynco had reportedly only continued the sunscreen process in Building 6, PCBs were undoubtedly present at Building 1 during the fire, as PCB contamination between 100 and 500 ppm has been identified in soils at Building 1.

Based on this information, a dioxin investigation is warranted at this site. Using the PCB grid previously established for sampling, Arsynco shall sample grid nodes G2, G10, G12, G15, G20, G21, G28, G30, G31 and G33, for PCDDs and PCDFs. The analytical method indicated in the Field Sampling Procedures Manual for PCDDs and PCDFs is 8280. Note that these sample locations were chosen based on their proximity to the buildings where heating of PCB oils was done and to areas of elevated PCBs in soil. Sampling shall be collected from the 0-6" interval of fill/soil. Note that if the site has been regraded as part of site decommissioning, or if additional fill material has been distributed such that the ground surface exposed during Inmont and Arsynco's tenure is now buried, this interval shall be identified. Additional sampling in that interval will also be required if this situation exists.

2. In the 2/25/99 RAW, Arsynco stated that an updated well search would be performed and submitted under separate cover (pg 20 of RAW). This shall be included in the next report and shall include a search of water purveyor records. Arsynco shall also determine if well #67 on the well search is a potable well, i.e. if it's used for food processing as noted.

3. Arsynco shall include the total depths and screened intervals of each well in tabular format in all future submittals. Well Certification Forms A & B shall be submitted for all wells.

4. Following installation of the wells required above, Arsynco shall collect an updated round of groundwater samples from all new and existing wells. Analytical parameters shall be VO+15, BN+15+ isophorone, PPM and PCBs. BNs, PPM and PCBs are being included at <u>all</u> wells to evaluate water quality at new wells and to determine whether contaminants have migrated to existing wells, etc.

5. Arsynco is advised that horizontal and vertical delineation of all groundwater AOCs is required. If the updated round indicates that additional delineation is required, Arsynco shall propose additional wells in the RIR.

6. Arsynco is advised that comments regarding the impact of historic fill on ground water (PAHs, PPM) are contingent upon case team agreement that the fill on Tract 1 (excepting the process waste) qualifies as fact historic fill.

General Requirements

1. Arsynco shall perform all actions as outlined in the SI/RIW, and conditioned in this approval. If any change in methods outlined in the SI/RIW is necessary, Arsynco shall inform BEECRA in writing prior to implementation.

2. Arsynco shall notify the Case Manager at least 14 calendar days prior to implementation of all field activities included in the SI/RIW. If Arsynco fails to initiate sampling in accordance with the approved schedule, any request for an extension may be denied.

3. Arsynco shall collect and analyze all samples in accordance with the protocol outlined in the most current edition of the NJDEP's "Field Sampling Procedures Manual" and the Technical Requirements for Site Remediation (TRSR), N.J.A.C. 7:26E.

4. Arsynco shall submit all reports or additional workplans, in triplicate, in accordance with an approved schedule. If any delays are encountered, Arsynco shall submit a revised schedule. Arsynco shall submit a revised schedule within 30 days of receipt of this letter pursuant to N.J.A.C. 7:26E. Please note that only one copy of the Quality Assurance/Quality Control deliverables is needed. All reports shall follow the requirements of the TRSR, N.J.A.C. 7:26E. Technically and administratively incomplete submissions, not prepared pursuant to N.J.A.C. 7:26E, may be rejected.

5. If contamination is determined to exist above a level found acceptable by NJDEP, Arsynco may prepare and submit either a Remedial Investigation Workplan or a Remedial Action Workplan pursuant to N.J.A.C. 7:26E. However, in accordance with N.J.S.A. 13:1K-9, Arsynco may elect to remediate the site without prior submission or approval from the NJDEP, except in cases involving a remedial action of ground water or surface water, or for the closure of an underground storage tank subject to N.J.S.A. 58:10A. If contamination exists on-site, but has not been fully delineated pursuant to N.J.A.C. 7:26E-4, then such delineation shall be completed as a Remedial Investigation which meets the criteria of N.J.A.C. 7:26E.

6. Any remedial action performed, or proposed in a Remedial Action Workplan, shall be in accordance with N.J.S.A. 58:10B-12.

7. Any proposal to leave contaminant concentrations on-site exceeding the NJDEP's current residential cleanup criteria, shall be in accordance with the Technical Requirements for Site Remediation N.J.A.C. 7:26E-5.1 and 5.2. Arsynco shall also submit proof of acceptance of the non-residential cleanup criteria by the current property owner.

8. Pursuant to the TRSR, N.J.A.C. 7:26E-3.13(c)3v, all analytical data shall be presented both as a hard copy and an electronic deliverable using the database format outlined in detail in the current HAZSITE application or appropriate spreadsheet format specified in the NJDEP's electronic data interchange manual.

For further information related to electronic data submissions, please refer to the Site Remediation Program's (SRP's) home page at the following internet address: **http://www.state.nj.us/dep/srp** The **Regulations and Guidance** page of this web site has a section dedicated to HazSite which includes downloadable files, an explanation of how to use these files to comply with the NJDEP's requirements, the SRP's Electronic Data Interchange (EDI) manual, and **Guidance for the Submission and Use of Data In GIS Compatible Formats Pursuant to "Technical Requirements for Site Remediation"**.

If you have any questions, please contact the Case Manager, John King, at (609) 984-1854.

Sincerely,

Bryan Moore, Supervisor
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